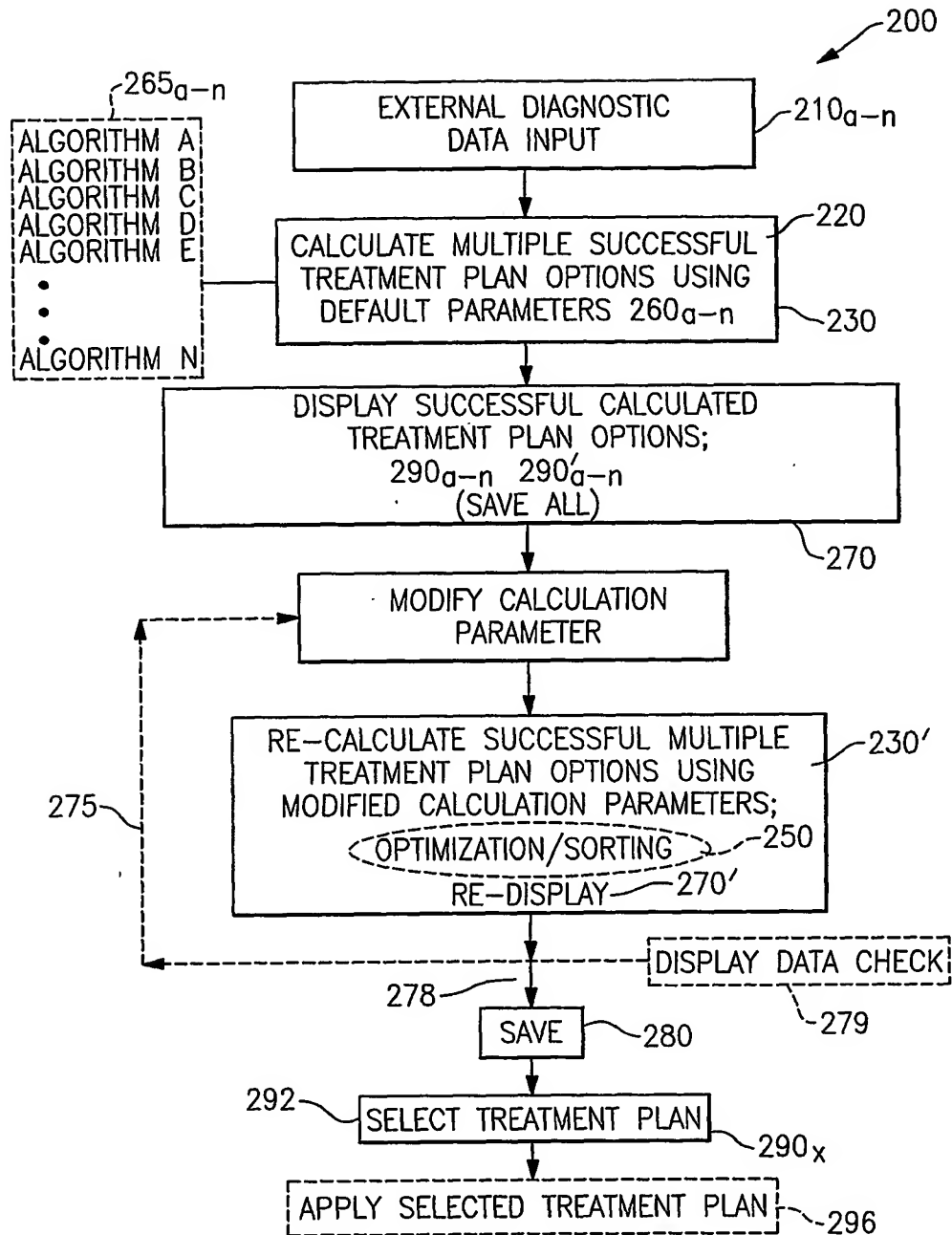
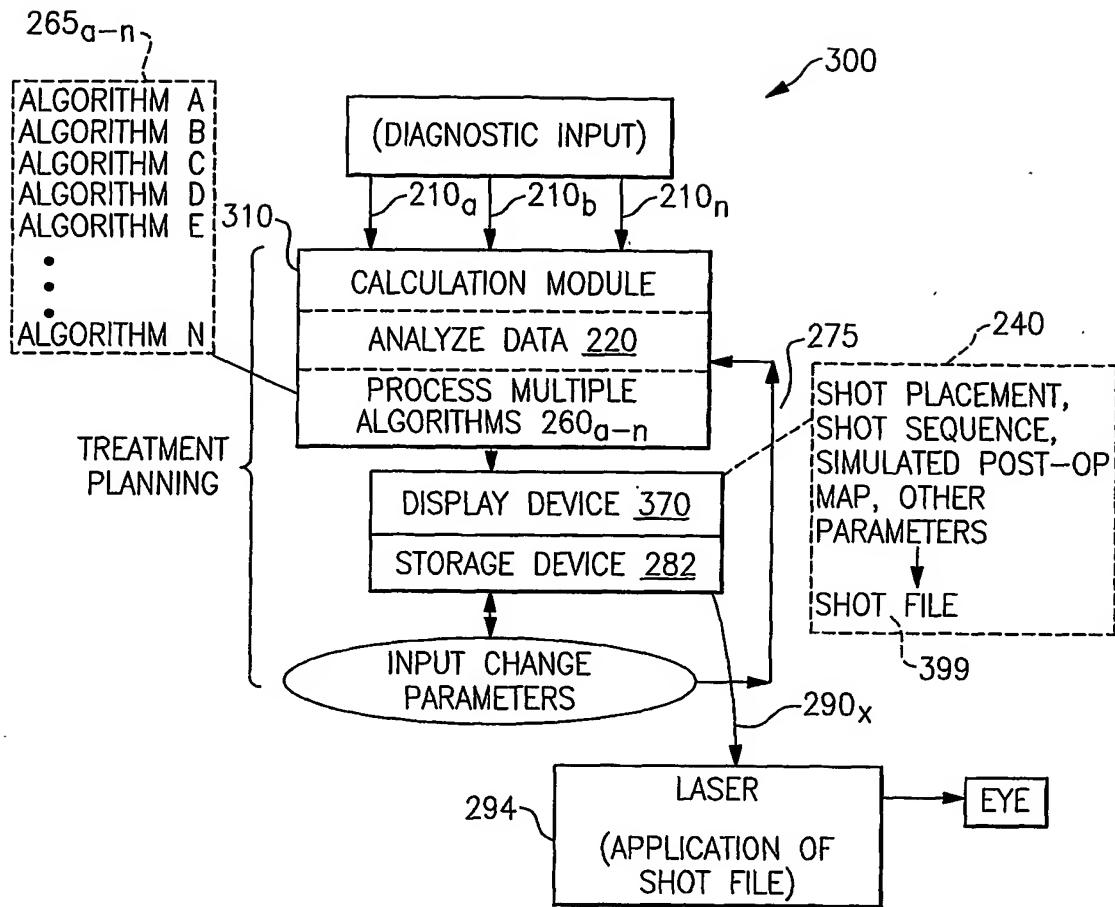
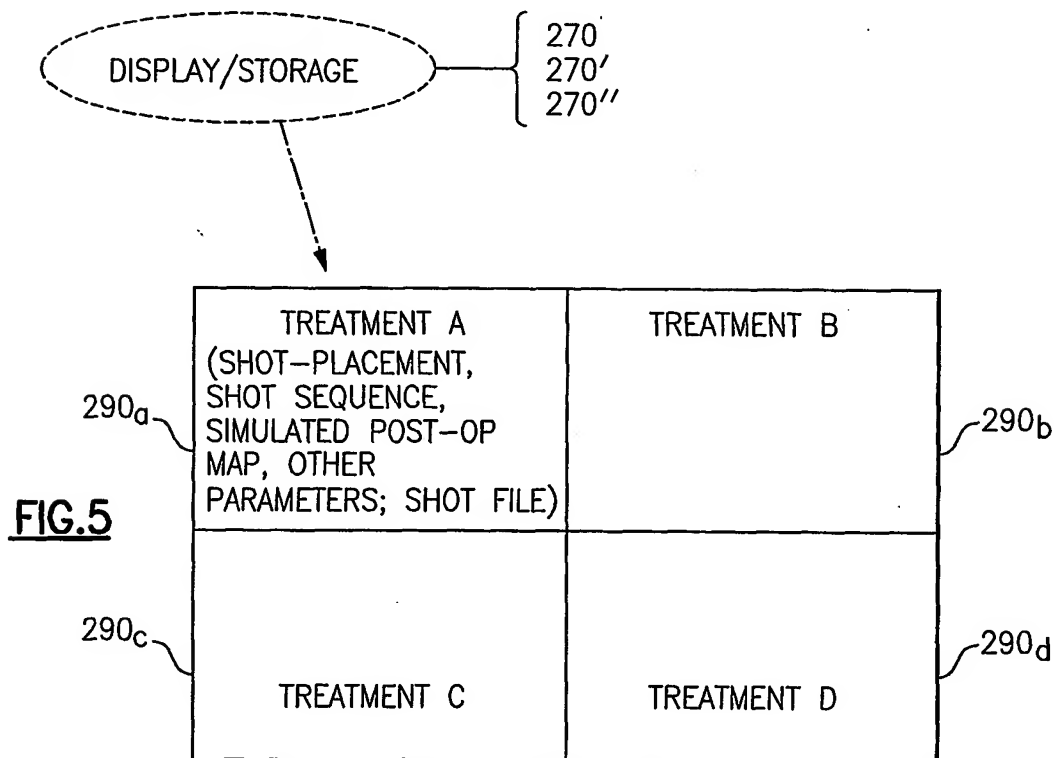
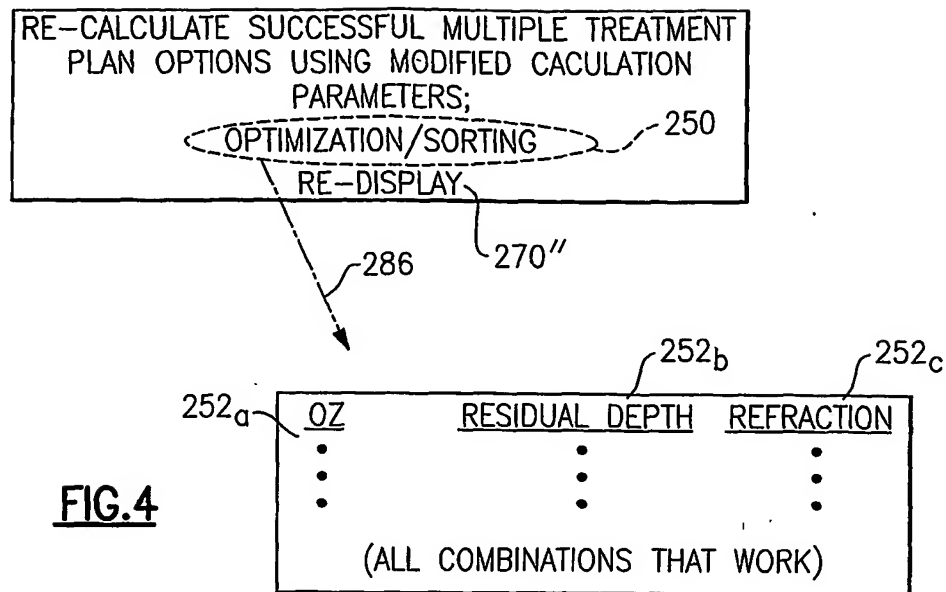
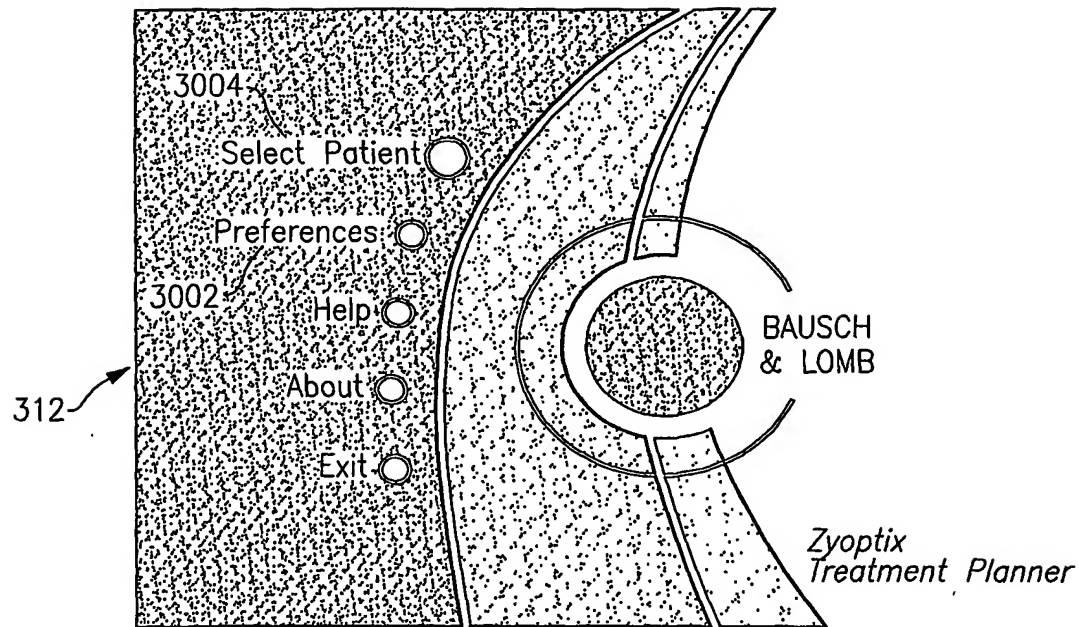
**FIG.1**

**FIG.2**

**FIG.3**



**FIG. 6**

TABLE

| PARAMETER | POSSIBLE RANGE | TYPE |
|------------------|----------------------------|--------|
| SPHERE | -25 D TO +10 D | INPUT |
| CYLINDER | -10 D TO +10 D | INPUT |
| AXIS | 0° TO 180° | INPUT |
| K-READING | 33 D TO 53 D | INPUT |
| OPTICAL ZONE | 4.5mm TO 8.5mm | INPUT |
| FLAP THICKNESS | 0 μ m TO 300 μ m | INPUT |
| PACHYMETRY | 300 μ m TO 700 μ m | INPUT |
| PUPILLOMETRY | 4mm TO 11mm | INPUT |
| MAX. ABLATION | UP TO 250 μ m | OUTPUT |
| NUMBER OF PULSES | UP TO 9000 | OUTPUT |

FIG. 19

| Treatment | | Smith, John | | Treatment | | | |
|------------------------------------|-----------|--|--|---|---|---|---|
| Information | | OD: Date: _____ | | Pachymetry (μm): 523 | | | |
| Rotational Eye Tracker Information | | Optical Zone (mm): 6.5 | | Zyoptix B | | | |
| Recommendation Information | | ess (μm): 180 | | Zyoptix A | | | |
| Restore Defaults | | 0.12 μm | | Zyoptix C | | | |
| | | 523 μm | | Zyoptix D | | | |
| | | Acoustic Factor: 0.92+(Pac + 0) | | Calculate | | | |
| | | Subjective Refraction: -2.0/0.5/10° | | Zyoptix Export | | | |
| | | Zywave PPR: 2.47/0.63/11° | | Print | | | |
| | | Zywave Pupil Diameter: 6mm | | | | | |
| B | Zyoptix B | <p>Max Ablation: 47 μm</p> <p>Remaining Stroma: 313 μm</p> <p>Optical Zone: 6.50 mm</p> | <p>Max Ablation: 46 μm</p> <p>Remaining Stroma: 314 μm</p> <p>Optical Zone: 6.50 mm</p> | <p>Max Ablation: 50 μm</p> <p>Remaining Stroma: 910 μm</p> <p>Optical Zone: 6.50 mm</p> | <p>Max Ablation: 50 μm</p> <p>Remaining Stroma: 910 μm</p> <p>Optical Zone: 6.50 mm</p> | | |
| C | Zyoptix C | <p>PreOp K-Reading: 44.1 dpt</p> <p>PreOp Conic Const: -0.17</p> <p>Pachymetry: 523 μm</p> <p>Acoustic Factor: 0.92-(Pac + 0)</p> <p>Subjective Refraction: -2.0/0.5/10°</p> | <p>PreOp K-Reading: 44.1 dpt</p> <p>PreOp Conic Const: -0.17</p> <p>Pachymetry: 523 μm</p> <p>Acoustic Factor: 0.92-(Pac + 0)</p> <p>Subjective Refraction: -2.0/0.5/10°</p> | <p>PreOp K-Reading: 44.1 dpt</p> <p>PreOp Conic Const: -0.17</p> <p>Pachymetry: 523 μm</p> <p>Acoustic Factor: 0.92-(Pac + 0)</p> <p>Subjective Refraction: -2.0/0.5/10°</p> | <p>PreOp K-Reading: 44.1 dpt</p> <p>PreOp Conic Const: -0.17</p> <p>Pachymetry: 523 μm</p> <p>Acoustic Factor: 0.92-(Pac + 0)</p> <p>Subjective Refraction: -2.0/0.5/10°</p> | | |
| D | Zyoptix D | <p>Sphere: -2.47 dpt</p> <p>Cylinder: 0.63 dpt</p> <p>Axis: 11°</p> <p>Number Of Pulses: 2144</p> <p>Treatment Time: ????</p> <p>Calculated Central Ablation: 45 μm</p> | <p>Sphere: -2.47 dpt</p> <p>Cylinder: 0.63 dpt</p> <p>Axis: 11°</p> <p>Number Of Pulses: 1744</p> <p>Treatment Time: ????</p> <p>Calculated Central Ablation: 45 μm</p> | <p>Sphere: -2.0 dpt</p> <p>Cylinder: 0.5 dpt</p> <p>Axis: 10°</p> <p>PreOp K-Read: 44.3 dpt</p> <p>PreOp Conic: -0.17</p> <p>Desired: -0.56</p> <p>Number Of Pulses: 1922</p> <p>Treatment Time: ????</p> | <p>Sphere: -2.0 dpt</p> <p>Cylinder: 0.5 dpt</p> <p>Axis: 10°</p> <p>PreOp K-Read: 44.3 dpt</p> <p>PreOp Conic: -0.17</p> <p>Desired: -0.56</p> <p>Number Of Pulses: 1922</p> <p>Treatment Time: ????</p> | <p>Sphere: -2.0 dpt</p> <p>Cylinder: 0.5 dpt</p> <p>Axis: 10°</p> <p>PreOp K-Read: 44.3 dpt</p> <p>PreOp Conic: -0.17</p> <p>Desired: -0.56</p> <p>Number Of Pulses: 1922</p> <p>Treatment Time: ????</p> | <p>Sphere: -2.0 dpt</p> <p>Cylinder: 0.5 dpt</p> <p>Axis: 10°</p> <p>PreOp K-Read: 44.3 dpt</p> <p>PreOp Conic: -0.17</p> <p>Desired: -0.56</p> <p>Number Of Pulses: 1922</p> <p>Treatment Time: ????</p> |

FIG.7

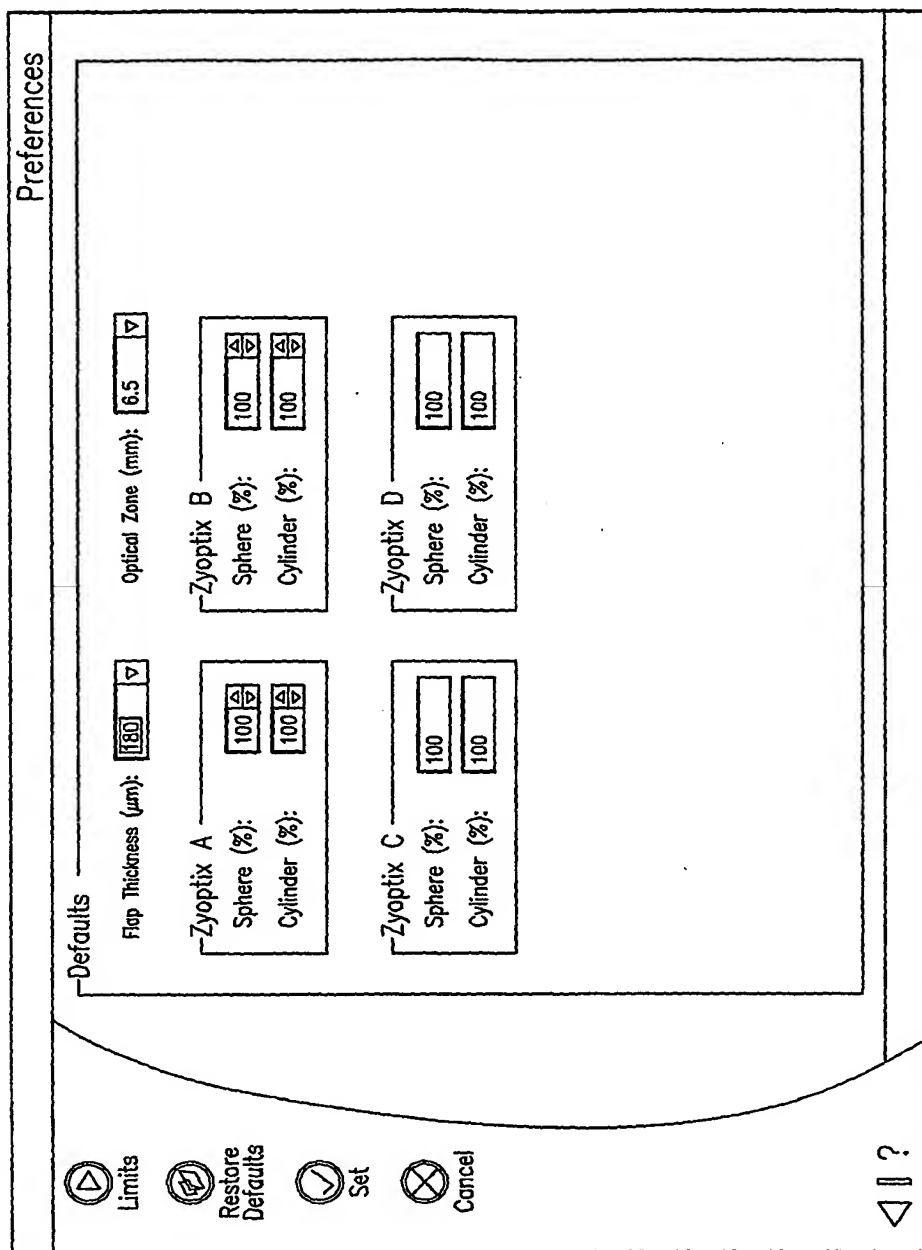


FIG. 8

BAUSCH & LOMB OS 03/29/2001 Doe, John

Birthdate: 12/28/1988 Data Check Treatment Planner Version 0.02

Save Cancel

Pachymetry
 User Selected Pachymetry:
 Orbscan Pachymetry: 523 μ m
 Orbscan Exam Date: 12/28/2002 12:33:45 PM
 Remaining Pachymetry Under Flap: ???
 Flap Thickness: 160 μ m

Zywave Exam Information
 Zywave Exam Date: 12/28/2002 12:33:45 PM
 Zywave PPR (6mm): 2.47 0.63/11
 Zywave RMS (6mm): ???
 Rotational Eye Tracker Used

Zyoptix A Treatment 03/21/2003 2:32:22 PM
 Sphere: -2.47 dpt
 Cylinder: -0.63 dpt
 Axis: 11
 Manifest Refraction: ???
 Number Of Pulses: 2144
 Laser Frequency: 50 Hz
 Treatment Time: ???
 Optical Zone: 6.5 mm
 Treatment Zone: ???
 Max Ablation: 50 μ m
 Central Ablation: 45 μ m

315a

< | ? Demo Version

FIG.9A

BAUSCH & LOMB OD 01/23/2002 Doe, Jane

Birthdate: 12/28/1988 Data Check Treatment Planner Version 0.02

Save Cancel

Pachymetry
 User Selected Pachymetry:
 Orbscan Pachymetry: 523 μ m
 Orbscan Exam Date: 12/28/2002
 Remaining Pachymetry Under Flap: ???
 Flap Thickness: 160 μ m

Zyoptix C Treatment 03/21/2003 2:32:22 PM
 Sphere: -2.47 dpt
 Cylinder: -0.63 dpt
 Axis: 11
 PreOp K-Read: 44.1 dpt
 Q Pre: -0.17
 Q Post: ???
 Manifest Refraction: ???
 Number Of Pulses: 2144
 Laser Frequency: 50 Hz
 Treatment Time: ???
 Optical Zone: 6.5 mm
 Treatment Zone: ???
 Max Ablation: 50 μ m

315b

< | ? Demo Version

FIG.9B

Defaults

Restore Defaults

Set

Cancel

Limits

Zyoptix A

Min Remaining Stroma (μm):

Max Number of Pulses:

Max Treatment Time:

Max Ablation (μm):

Min Optical Zone (mm):

Zyoptix B

Min Remaining Stroma (μm):

Max Number of Pulses:

Max Treatment Time:

Max Ablation (μm):

Min Optical Zone (mm):

Zyoptix C

Min Remaining Stroma (μm):

Max Number of Pulses:

Max Treatment Time:

Max Ablation (μm):

Min Optical Zone (mm):

Max PostOp K-Reading (dpt):

Min PostOp K-Reading (dpt):

Preferences

◀ ▶ ?

316

FIG.10

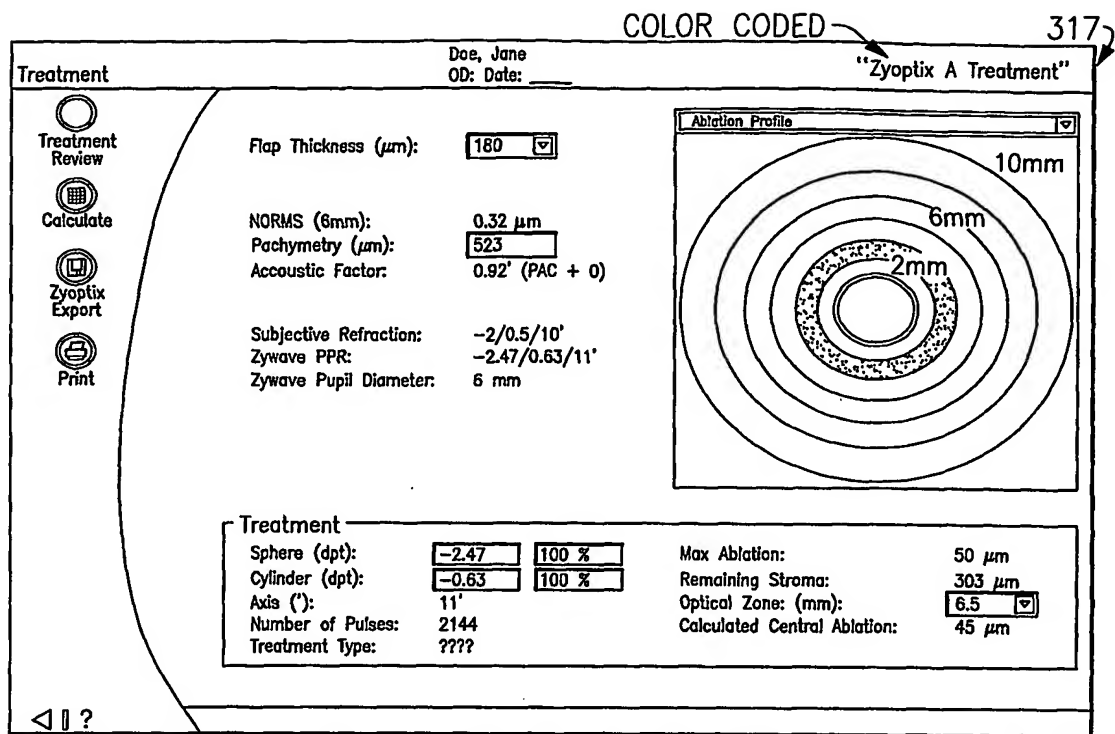


FIG.11A

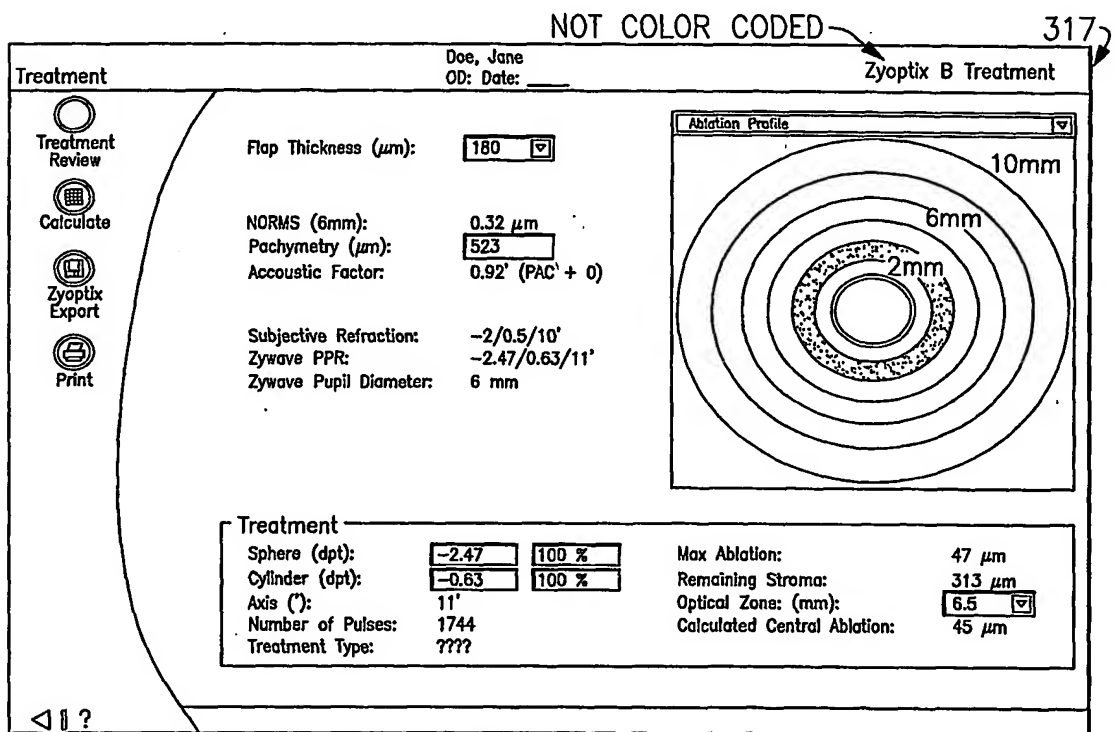


FIG.11B

BAUSCH & LOMB

Preferences

Settings

Settings
Defaults
Finished

Settings

General

Ote File Path: Language:

Ate File Path: Laser Frequency:

TLS File Path:

Clinic

Clinic Name:
Software Location:
Laser Number: Surgeon Name: Technician Name:

Zyoptix Treatment Planner

1202a

FIG.12A

BAUSCH & LOMB

Preferences

Defaults

Settings
Defaults
Finished

Defaults

Flap Thickness (μm):

Zyoptix Tissue Saving:

Optical Zone (mm)

☐ Use Default Value Default Value:
☒ Calculate from Pupilometry Add Value to Pupilometry:
Stay within this range. Min: Max:

Percent of Baseline Refraction

| Procedure | Refraction Type | Sphere | Cylinder | |
|----------------------|-----------------|--------|----------|---------------------------------------|
| Zyoptix Personalized | Hyperopia | 100 | 100 | <input type="button" value="Add"/> |
| Zyoptix Personalized | Myopia | 100 | 100 | <input type="button" value="Delete"/> |
| Zyoptix Personalized | Hyperopia | 100 | 100 | |
| Zyoptix Personalized | Myopia | 100 | 100 | <input type="button" value="v"/> |

Zyoptix Treatment Planner

1202b

FIG.12B

BAUSCH & LOMB

1302

1318

1310

1304

1306

1308

1312

1316

1304

Patient Search

Last Name

First Name

OTE Files

Smith, John

OD

03/18/2003 11:43:22 AM

DOB (mm/dd/yyyy):

Gender:

Sub Refraction:

File Name:

Comment:

ATE Files

Smith, John

OD

09/17/2003 16:34:25

Patient ID:

DOB (mm/dd/yyyy):

Gender:

Sub. Ref.:

PPR:

Wavefront Dia.(mm):

File Name:

Comment:

Zyoptix Treatment Planner

FIG.13

BAUSCH & LOMB

1402

Continue

Restore

Cancel

Patient Information

Patient ID

000011

Last Name

Smith

First Name

John

DOB (mm/dd/yyyy)

05/27/1967

Age

36

Gender

☒ Male ☐ Female

Eye Information

Eye

☒ OD ☐ OS

☐ Retreatment

Subj. Sphere

-2.50

PPR Sphere

-2.39

Subj. Cylinder

-1.25

PPR Cylinder

-1.32

Subj. Axis

170

PPR Axis

163

Pachymetry (μm)

616

Pupillometry (mm)

6.4

Zyoptix Treatment Planner

FIG.14

BAUSCH & LOMB Smith, John OD 1506

Options: Personalized, Tissue Saving, Maps, Calculate

1302

Treatment Overview 1504

| | | |
|-----------------------------------|---------------------|----------------------|
| Subj. Refraction: -2.50/-1.25/170 | INPUT VARIABLES | Pre-Op (6mm) |
| PPR (3.5mm): -2.39/-1.32/163 | OPTICAL ZONE: 8.0 | HO-RMS: 0.48 μ m |
| Wavefront Dia.: 7.01 mm | FLAP THICKNESS: 160 | Z400: -0.38 μ m |
| Pupillometry: 6.4 mm | | Q (Conic): -0.21 |
| Pachymetry: 616 μ m | | K-Reading: 43.5 D |

| | | |
|--------------------------------|------------------------------|--------------------------------|
| Baseline Ref. -2.39/-1.32/163 | Personalized -2.50/-1.25/170 | Tissue Savings -2.50/-1.25/170 |
| Treatment Ref. -2.39/-1.32/163 | | |
| % of Baseline: 100%/100% | | |
| Optical Zone: 6 mm | | |
| Flap Thickness: 160 μ m | | |
| Maximum Abl.: 54 μ m | | |
| Central Abl.: 54 μ m | | |
| Res. Stroma: 395 μ m Est. | | |
| Treat. Zone: 8.3 x 8.2 mm | | |
| Pulses (Time): 1858 (19 sec) | | |
| Export TLB | Export TLB | |

1508

Messages:

1504

Zyoptix Treatment Planner

FIG.15

BAUSCH & LOMB Smith, John OD

Options: Calculate, Zyoptix Export

1615

1604, 1606, 1608

1602

Zyoptix Tissue Saving Treatment

Pre-Op K-Read (D): 43.5 Default

Pupillometry:

Pachymetry: 616 μ m

Treatment

Subj. Refraction: -2.50 / -1.25 / 170

Treatment Refraction: -2.50 / -1.25 / 170

Percent Subj. Ref.: 100 / 100

Optical Zone (mm): 8.0

Flap Thickness (μ m): 160

Max Ablation: 52 μ m

Residual Stroma: 397 μ m Est.

Treatment Zone: 9.3 x 8.4 mm

Pulses (Time): 1908 (19 sec)

Calc.

1612

1610

Abraction Profile

48, 42.5, 38.9, 31.4, 25.8, 20.3, 14.8, 9.2, 3.7

Messages:

Zyoptix Treatment Planner

FIG.16

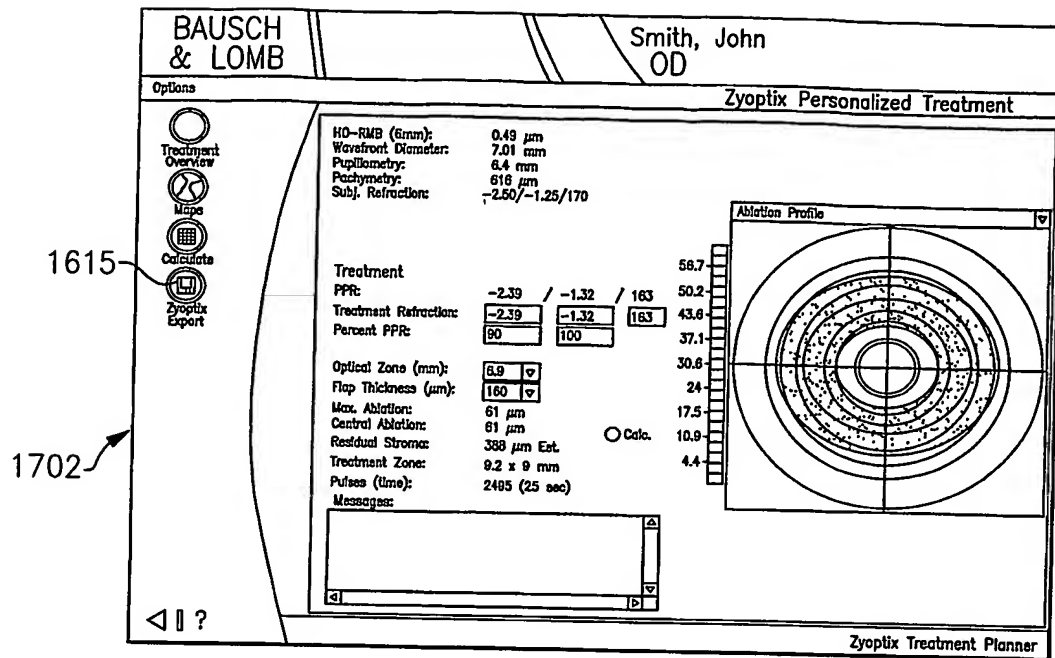


FIG. 17

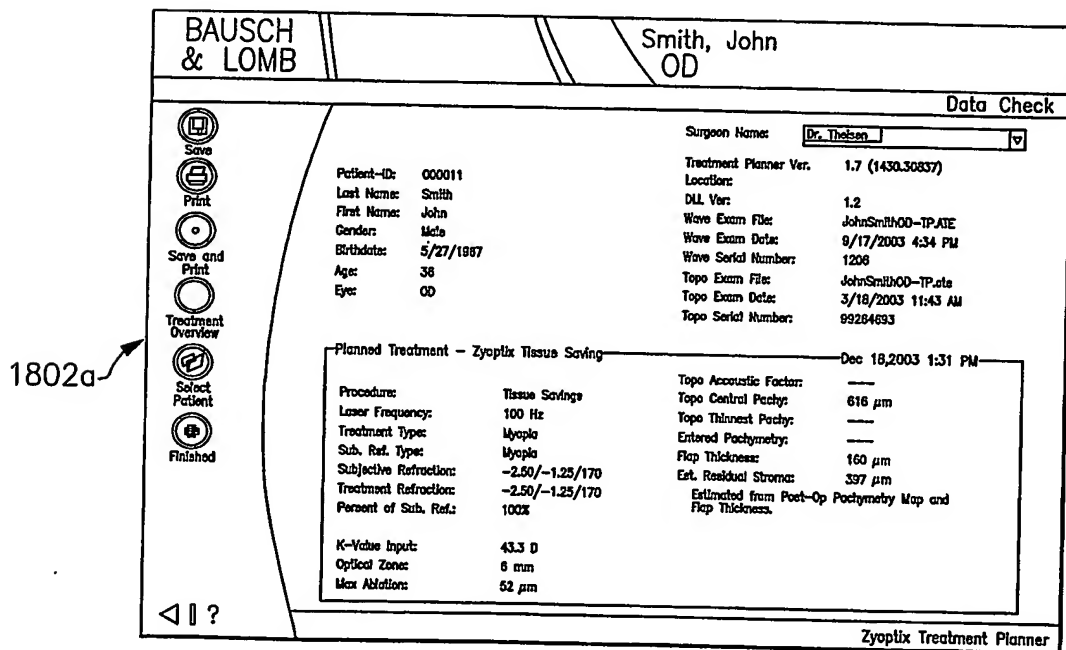


FIG. 18A

BAUSCH & LOMB Smith, John OD

Data Check

1804 Save
1802b Print
Save and Print
Treatment Overview
Select Patient
Finished

Laser Frequency: 100 Hz
Treatment Type: Myopia
PPR Type: Myopia
Subjective Refraction: -2.50/-1.25/170
PPR (3.5mm): -2.39/-1.32/163
Treatment Refraction: -2.39/-1.32/163
Percent of PPR: 100%/100%

Topo Thinnest Pachy: ---
Entered Pachymetry: ---
Flap Thickness: 160 μ m
Est. Residual Strima: 395 μ m
Estimated from Post-Op Pachymetry Map and Flap Thickness.

Optical Zone: 6 mm
Max. Ablation: 54 μ m
Central Ablation: 54 μ m
Treatment Zone: 8.3 x 8.2 mm
Number Pulses (Time): 1858 (19sec)
Pulses for 2mm/1mm: 1317/539
Num. Treatment Phases: 2

Iris Recognition: Available
Ave Pupil shift X/Y: 26 μ m / 80 μ m
Ave Angle dL vs undL: -0.35°
TLB file:

Messages
Recommended Centration is the Pupil Center.

Entered Pupillometry: ---
Wave Pupillometry: 6.4 mm
Wavefront Diameter: 7.01 mm
HO-RMS (6mm): 0.49 μ m
Z400 (6mm): -0.36 μ m

Zyoptix Treatment Planner

FIG.18B

BAUSCH & LOMB Smith, John OD

Data Check

1802c Save
Print
Save and Print
Treatment Overview
Select Patient
Finished

Pulses for 2mm/1mm: 1317/539
Num. Treatment Phases: 2
TLB file:

Messages
Recommended Centration is the Pupil Center

Print Comments

Visual Acuity SC:
Visual Acuity CC:
Planned Ring Size:

Entered Pupillometry: ---
Wave Pupillometry: 6.4 mm
Wavefront Diameter: 7.01 mm
HO-RMS (6mm): 0.49 μ m
Z400 (6mm): -0.36 μ m

Pre-Op Q (Conic,6mm): -0.21
Pre-op K-Reading(6mm): 45.5 D
White to White: ---
Simks: 46 D & 44.6 D
Topo Astig.: -1.4 D @ 168°
Angle Kappa: ---
Pup. Center vd Apex: ---

Zyoptix Treatment Planner

FIG.18C